

Land Adjacent to Genesis House, Bolton

Desk Based Coal Mining Risk Assessment

Job Number: LKC 24 1154

Date: May 2024

Client: Go Wallpaper Ltd



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Report Title	Desk Based Coal Mining Risk Assessment
Job Number	LKC 24 1154
Client	Go Wallpaper Ltd

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It should be noted this report pertains solely to potential ground stability issues relating to potential shallow mining within the proposed planning boundary only.

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1. Introduction

LK Consult Ltd (LKC) has been commissioned to carry out a Desk Based Coal Mining Risk Assessment (CMRA) for land adjacent to Genesis House, Bolton.

A Coal Mining Risk Assessment Report is required for a planning application within a designated 'Coal Mining Development High Risk Area'. 'Coal Mining Development High Risk Areas' are areas, based upon Coal Authority records, where the potential land instability and other safety risks associated with former coal mining activities are likely to be greatest. They include, for example, areas of known or suspected shallow coal mining, recorded mine entries and areas of former surface mining.

This assessment is based upon guidance provided by the Coal Authority¹ and comprises a review of available desk-based information.

The scope of this Coal Mining Risk Assessment (as per Coal Authority guidance) is to:

- Present a desk-based review of all available information on the coal mining issues which are relevant to the application site.
- Use the above information to identify and assess the risks to the proposed development from coal mining legacy, including the cumulative impact of issues.
- Set out appropriate mitigation measures to address the coal mining legacy issues affecting the site, including any necessary remedial works and/or demonstrate how coal mining issues have influenced the proposed development.
- Demonstrate to the Local Planning Authority that the application site is, or can be made, safe and stable to meet the requirements of national planning policy regarding development on unstable land.

A summary of the site details is presented in Table 1-1. Figure 1 indicates the site location and boundary plan. Figure 2 indicates the proposed development.

Location	North-east of Stopes Road (A6053), Little Lever, Bolton. Centred at National Grid Reference 376490E 407530N.
Area	600m ² .
Topography	104 metres above ordnance datum (AOD). Site is approximately level.
Current Site Use	Grassed covered area of vacant land adjacent to existing warehouse units.
Proposed Development	Construction of new warehouse unit.

Table 1-1: Summary of site details.

2. Review of Information

2.1. Information Sources

LKC have obtained and reviewed information from the following sources, which is summarised in Section 2:

- Review of Published BGS Geological Mapping including:
 - Lancashire Sheet 95 NE, Published 1929, Scale 1:10,560
 - Sheet 85 Manchester Solid, Published 1975, Scale 1:50,000.
 - Sheet 85 Manchester Bedrock, Published 2010, Scale 1:50,000.
- Geology of the Manchester district, a brief explanation of the geological map Sheet 85 Manchester.
- Coal Authority Consultants Coal Mining Report (Appendix B).
- Coal Authority Interactive Map Viewer².
- Coal Authority List of Combustible Coal Seams³.
- Historical BGS boreholes within the site vicinity⁵ (Appendix C).
- Historical Mapping (See Phase 1 Preliminary Risk Assessment report undertaken by LKC Ref: LKC 24 1154-A1-PRA-Genesis House, Bolton R0).

2.2. Geological Mapping

2.2.1. Artificial

No BGS recorded artificial deposits are recorded on site.

2.2.2. Superficial

The superficial geology is mapped as Devensian Till (Diamicton).

2.2.3. Bedrock

The bedrock is mapped as the Pennine Middle Coal Measures Formation (Mudstone, Siltstone and Sandstone). No dip data is recorded on site, however the strata in the wider area dips to the south-west between 15 and 22°.

A coal seam is shown to subcrop (at rockhead) approximately 70m north which is expected to dip below the site. This coal seam not labelled on 2010 edition 1:50,000 sheet mapping. 1929 edition 1:10,560 mapping labels this as the “Top Three Yards” mine. Based the stratigraphic sequence and explanatory notes for Sheet 85, this coal seam likely to be the Top Furnace Coal or the Brassey (Roger) Coal.

Assuming a dip of 15-22°, the seam is expected to be at a depth of approximately 19-28m below rockhead on site.

Another coal seam is shown to subcrop (at rockhead) approximately 185m north which is also expected to dip below the site. This is anticipated to be the Rams (Bottom Furnace) coal seam based on 2010 edition 1:50,000 sheet mapping. Assuming a dip of 15-22°, the seam is expected to be at a depth of approximately 50-75m below rockhead on site.

A coal seam is shown to subcrop (at rockhead) approximately 50m to the south-west of site, as is expected to be dipping away from the site. This is anticipated to be the Bin (Top Five Quarters) Mine based on 1975 edition 1:50,000. It should be noted that the

location of the coal seam outcrop varies between the 1975 and 2010 mapping. The shape of this outcrop in 2010 suggest surface workings have occurred since 1975 mapping to the south of the site (see Plate 2-1).

Extracts from geological mapping (Sheet 85 dated 2010, 1975 and Lancashire Sheet 95 NE dated 1929) are shown on Plate 2-1. These show the differences in geology between mapping.

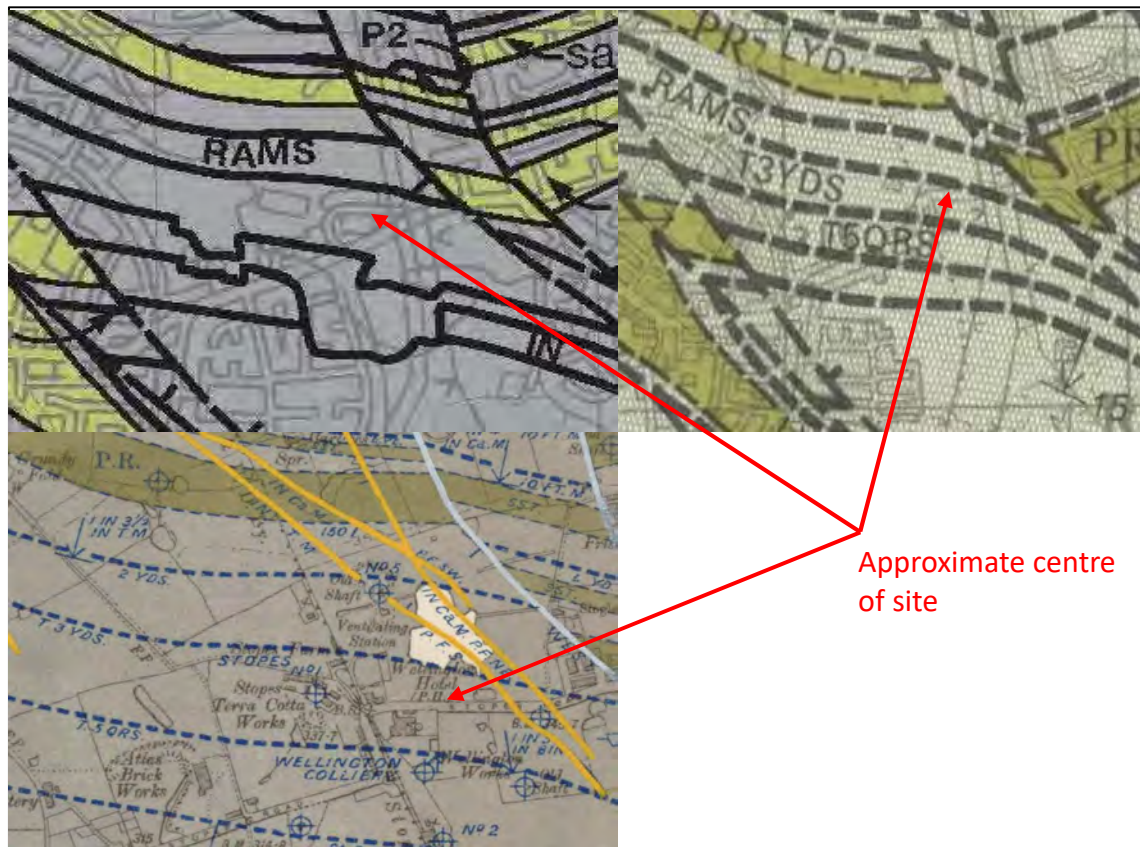


Plate 2-1: Extracts from geological mapping. Top left: 2010 1:50,000 sheet mapping, top right: 1975 1:50,000 sheet mapping (left) and bottom left: 1929 1:10,560 sheet mapping. Not to scale.

Plate 2-2 shows an extract of the generalized vertical section from Sheet 85 showing the section of strata expected on and below the site.

Plate 2-2: Extract of the generalized vertical section from Sheet 85 (dated 2010). Not to scale.

Sheet 85 explanatory notes provide additional information on the coal seams within the Manchester Area.

An extract showing the anticipated shallowest coal seam below the site (Brassey, Roger or Top Furnace) and the coal seams below this in age order is provided in Plate 2-3. It should be noted that not all coal seams may be present below the site due to geological variation.

Brassey (Roger)	BR	0.3-1.2	Deep mined
Top Furnace	TF	0.2-0.7	Deep mined
Rams Coal (Bottom Furnace)	Rams	0.8-2.4	Deep mined and surface mined (opencast)
Stubbs	St	0.0-0.4	Not worked
Fairbottom (Bargan)	F	0.3-0.7	Deep mined and surface mined (opencast)
Pemberton Five Foot (Hard, Windmill, Higher Florida)	P5	0.4-0.8	Deep mined and surface mined (opencast)
Park (Lower Yard)	Pk	0.1-0.8	Deep mined
White (Foxholes, Lower Florida)	WH	0.3-1.5	Deep mined and surface mined (opencast)
Pemberton Two Foot (Cannel, Two Feet)	P2	0.0-0.8	Not worked
Pemberton Four Foot (Black, Town Lane)	P4	0.0-1.3	Not worked
Top Shuttles (Gigham)	TSh	0.0-0.1	Not worked

Coal seams anticipated below the site

Plate 2-3: Extract from the Geology of Manchester district explanatory notes.

2.3. Coal Authority Consultants Coal Mining Report

The consultants coal mining report is summarised in Table 2-1.

Mining Activity and Geology	
Past underground mining	Yes: See Plate 2-4.
Probable unrecorded shallow workings	Yes.
Spine roadways at shallow depth	No spine roadway recorded at shallow depth.
Mine entries (within 100m)	Yes: See Plate 2-5.
Abandoned mine plan catalogue numbers	6603, NW998, PO0, NW991, 16820, NW293, NW1043, NW1052, 9822.
Outcrops	No outcrops recorded.
Geological faults, fissures and breaklines	No faults, fissures or breaklines recorded.
Opencast mines	1no. recorded within 500m of the enquiry boundary.
Coal Authority managed tips	None recorded within 500m of the enquiry boundary.
Investigative or Remedial Activity	
Site investigations	None recorded within 50m of the enquiry boundary.
Remediated sites	None recorded within 50m of the enquiry boundary.
Coal mining subsidence	Not received a damage notice or claim for the subject property, or any property within 50m, since 1994. No current Stop Notice delaying remedial works or repairs to property. Not aware of any request made to carry out preventative works before coal is worked.
Mine gas	None recorded within 500m of the enquiry boundary.
Mine water treatment schemes	None recorded within 500m of the enquiry boundary.
Licensing and Future Mining Activity	
Future underground mining	None recorded.
Coal mining licensing	None recorded within 200m of the enquiry boundary.
Court Orders	None recorded.
Section 46 notices	No notices have been given, stating that the land is at risk of subsidence.

Table 2-1: Summary of Coal Authority Consultants Coal Mining Report.

Licensing and Future Mining Activity	
Withdrawal of support notices	Not in an area where a notice to withdraw support has been given or where a notice has been given cancelling the entitlement to withdraw support.
Payments to owners of former copyhold land	Not in an area where a relevant notice has been published.
Further Information	
The following further information is provided: Future Development. Mine Gas. Development Advice.	

Table 2-2 Continued: Summary of Coal Authority Consultants Coal Mining Report.

Plate 2-4 shows the past underground mining. This is defined by the Coal Authority as *'details of all recorded underground mining relative to the enquiry boundary. Only underground workings where the enquiry boundary is within 0.7 times the depth of the workings (zone of likely physical influence) allowing for seam inclination, will be included'*.

Colliery	Seam	Mineral	Coal Authority reference	Depth (m)	Direction to working	Dipping rate of seam worked (degrees)	Dipped direction of seam worked	Extraction thickness (cm)	Year last mined
unnamed	ROGER	Coal	3Z20	23	Beneath Property	16.0	South	210	1887
unnamed	LOWER FLORIDA	Coal	3YX4	86	North-West	16.0	South	190	1901
unnamed	RAMS	Coal	3YNH	92	Beneath Property	14.9	South	180	1898
unnamed	TOP SHUTTLES	Coal	3Z3V	101	North-West	16.0	South-West	150	1894
unnamed	FAIR BOTTOM	Coal	3YX2	114	North-East	16.0	South-West	30	1957
unnamed	RAMS	Coal	3YN3	116	South-West	14.9	South	180	1898
unnamed	HIGHER FLORIDA	Coal	3YR4	159	Beneath Property	14.0	South	50	1900
unnamed	LOWER FLORIDA	Coal	3YXI	170	Beneath Property	16.0	South-West	190	1901
unnamed	WIGAN FIVE FEET	Coal	3YY5	189	Beneath Property	16.0	South	120	1908
unnamed	TOP SHUTTLES	Coal	3Z43	191	Beneath Property	16.0	South-West	150	1894
unnamed	DOE	Coal	3Z3X	196	Beneath Property	16.0	South	200	1904
unnamed	TRENCHERB ONE	Coal	3YW2	239	North-East	14.0	South	160	1908
unnamed	CANNEL	Coal	3YQR	280	North-East	14.0	South	150	1908
unnamed	CANNEL	Coal	3YQQ	337	Beneath Property	16.0	South	150	1908
unnamed	TRENCHERB ONE	Coal	3YWL	344	Beneath Property	16.0	South	160	1908

Plate 2-4: Extract from Coal Authority Report showing past underground mining.

Probable unrecorded shallow workings are defined as *'areas where the Coal Authority believes there to be unrecorded coal workings that exist at or close to the surface (less than 30m deep)'*.

Plate 2-5 shows the mine entries within 100m of the site boundary.

Entry type	Reference	Grid reference	Treatment description	Mineral	Conveyancing details
Adit	376407-009	376437 407508		Coal	
Shaft	376407-017	376583 407549		Coal	
Shaft	376407-021	376471 407467		Coal	
Adit	376407-022	376486 407481	This adit has been backfilled with debris to at some time in the past.	Coal	
Shaft	376407-031	376598 407550		Coal	

Plate 2-5: Extract from Coal Authority Report showing mine entries within 100m.

Adit reference 376407-0009 is located approximately 30m to the south-west. Shaft reference 376407-021 and adit reference 367407-022 are located approximately 50m the south and west. The remaining shafts are located over 50m from the site boundary.

Plate 2-6 shows an extract of the plan provided with the Coal Authority Consultants Coal Mining Report.

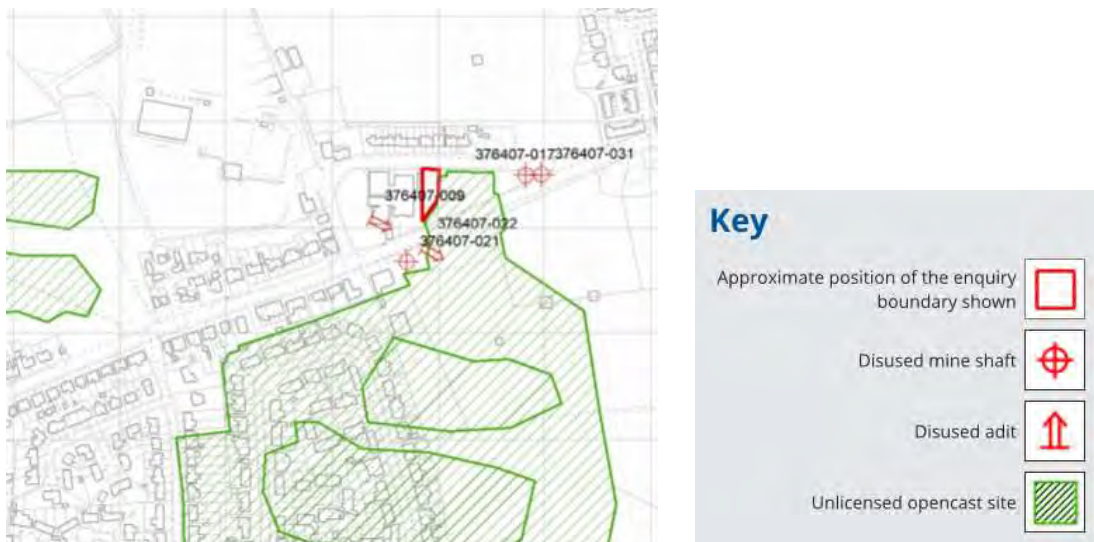


Plate 2-6: Extract from Coal Authority Consultants Coal Mining Report – Summary of Findings.

2.4. Coal Authority Interactive Mapping

Plate 2-7 shows the development high risk areas.

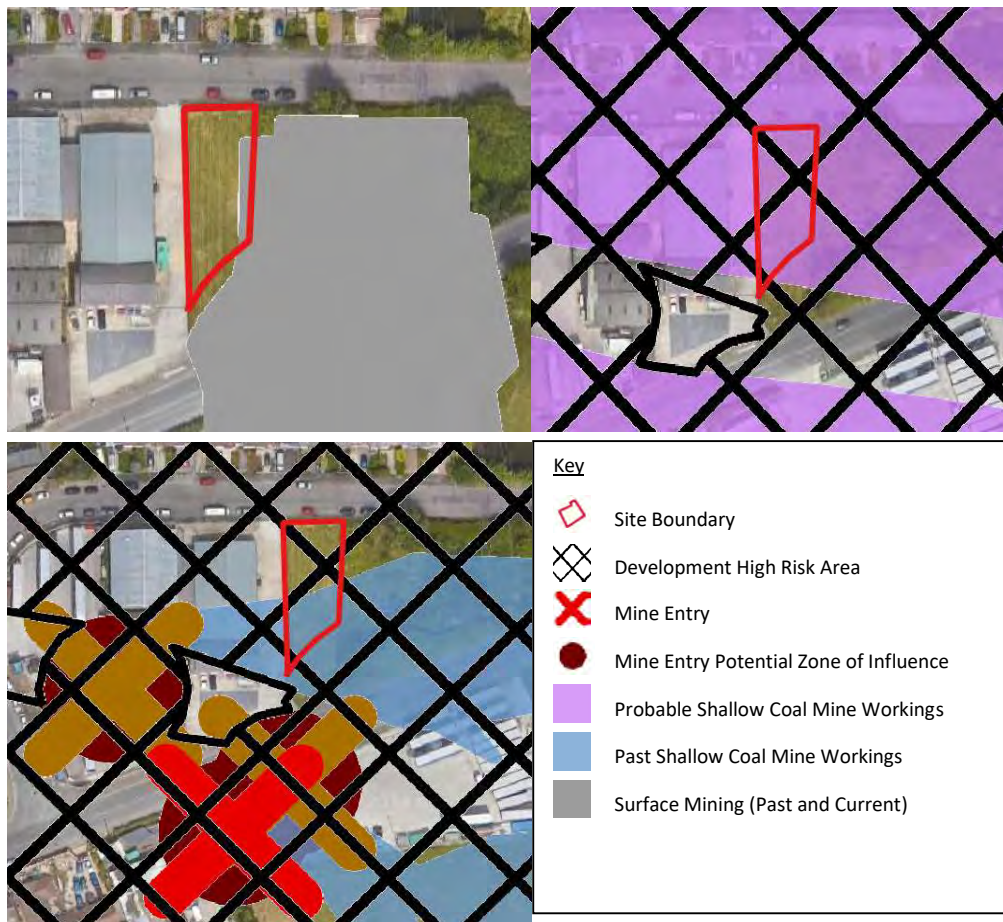


Plate 2-7: Development High Risk Area

The site is within a Development High Risk Area, with the following features identified:

- Past Shallow Coal Mine Workings – southern portion of site.
- Probable Shallow Coal Mine Workings – majority of the site with the exception of the far most southern corner of site.
- Surface Mining (past and current) – eastern site boundary.

The following information is provided on the mine entries and site entries within 100m. (see Section 3 for assessment):

Ref: 376407-009

Treated: false

Adit angle: 116

Assumed diameter: 2.5

Departure: 8

Ref: 376407-022

Treated: false

Adit angle: 120

Assumed diameter: 2.5

Departure: 8

Name: Wellington Adit

Ref: 376407-021

Treated: false

Actual shaft diameter: 3

Shaft depth: 15

Departure: 5

Name: Wellington Pit

Ref: 376407-017

Treated: false

Assumed shaft diameter: 2.5

Departure: 8

Ref: 376407-031

Treated: False

Assumed shaft diameter: 2.5

Departure: 8

2.5. Combustible Coal Seams

Some coal seams have been known to suffer from occurrences of spontaneous combustion and are consequently regarded as at 'high risk' of succumbing to spontaneous combustion when being entered, worked, or disturbed. The Coal Authority have produced a list of seams for different areas of the UK.

The list includes the Higher Florida (Pemberton Five Foot, Hard, Windmill), Lower Florida (White, Foxholes) and Trencherbone seam (Wigan Six Feet or Oldham Great), which are all recorded as being worked beneath the site, however no shallow workings within these seams are recorded (86-344 beneath site) so are not considered to pose a significant risk. No faulting, mine shafts of significant pathways for gas related to deeper workings anticipated onsite.

2.6. Historical BGS Logs

Ref: SD70NE57 31m SE of site:

The depth of drift thickness is unknown, and is presumed that logging began from bedrock. An extract of the borehole log is provided below.

	Thickness.	Depth below Drift.
Drift deposit Thickness unknown		
Blue Metal.	7 - -	7 - -
Blue Shale.	16 1 6	23 1 6
Black Shale.	4 - -	27 1 6
Coal.	4	27 1 10
Fireclay.	2 - -	29 1 10
Blue Metal.	1 2 -	31 - 10
Grey Rock Band (The artesian well at works is supposed to be sunk in this) i.e Nursery Mills B.H.	7 1 -	38 1 10

Blue Metal.	1	-	-	39	1	10
Grey or Red Rock.	1	-	8	40	2	6
Red Rock.	26	-	-	66	2	6
Red Metal.	2	-	-	68	2	6
Grey Metal.	12	-	-	80	2	6
Rock.	2	-	-	82	2	6
Blue Metal.	2	-	-	84	2	6
Coal.			2	84	2	8
Rocky Warrant.	2	2	9	87	2	5
Grey Floors		2	3	88	1	8
Black Metal.		2	6	89	1	2
White Metal.	2	-	1	91	1	3
Grey Floors.		1	6	91	2	9

From sinking at Stand Lane to end of Journal.

The shallowest depth that coal was identified at approximately 25m below rockhead. Coal was further identified at approximately 77m below rockhead.

The nearest borehole record that shows depth to bedrock is summarised below:

Ref: SD70NE389 155m W of site:

- Made Ground to 3.00mbgl.
- Clay to 6.10mbgl.
- Grey SHALE to 24.40mbgl.
- SANDSTONE to 24.70mbgl.
- SHALE to 30.50mbgl.
- **COAL** to 30.80mbgl.
- Seat Earth to 31.80mbgl.
- SHALE and SANDSTONE to 31.90mbgl.
- SHALE to 71.90mbgl.

Given the distance to the borehole to site, the ground conditions in this location may not be reflective of conditions beneath site.

2.7. Historical Mapping

The following historical features have been identified associated with coal mining:

- 'Stopes Colliery' is shown approximately 90m south-west of site on 1850 mapping.
- A coal pit is shown approximately 140m south-west on 1850 mapping.
- An unspecified pit is shown approximately 20m to the south between 1929 and 1930 mapping.
- An 'Old Shaft' is shown approximately 150m north-west of site between 1909 and present mapping (2024).

Ref: 376407-031, NGR: 376598, 407550, Departure: 8
Zone of Influence: 75.19m

It should be noted that the zones of influence calculated do not take into account potential differences in topography and possible connected mine shafts.

The zone of influence(s) will need to be updated once further details on the ground conditions, the mine shaft and topography are known.

Based on the above calculations, assume shaft diameter of 2.5m and departure distance of 8m, the ZOI of shaft reference 376407-021 could extend onto the southern portion of site. At this stage, it is considered to pose a risk and further assessment will be required.

Shaft references 376407-021 and 376407-031 are over 80m to the north-east of the site. Given the distances to site, the features are not considered to pose a significant risk to the development and no further assessment is required.

Adit reference 376407-009 and adit reference 367407-022 are both shown to dip away from the site towards the south-east. In addition, adit reference 367407-022 has been treated according to Coal Authority data. Based on the above, the adits are not considered to pose a significant risk to the development and no further assessment is required.

3. Coal Mining Risk Assessment

Table 3-1 below summarises the potential risks associated with coal mining legacy for the proposed development site.

Coal Mining Issue	Potential Risk	Risk Assessment
Underground coal mining (recorded at shallow depths)	✓	Known underground shallow workings recorded by the Coal Authority. Workings within the Roger coal seam at 23m beneath site. There could be a risk of ground instability at the site surface associated with these workings. Investigation work required.
Underground coal mining (probable at shallow depths)	✓	Probable underground shallow workings recorded by the Coal Authority (Top Furnace Coal). Further coal seams may also be present. If shallow coal seams have been worked, they could pose a risk of ground instability at the site surface. Investigation work recommended and a watching brief during groundworks.
Mine entries (shafts / adits)	?	Adit reference 376407-009 and adit reference 367407-022 are both shown to dip away from the site towards the south-east. Ref/; 367407-022 has also been treated according to Coal Authority data. The adits are not considered to pose a significant risk to the development and no further assessment is required. Given the distance to site, the features are not considered to pose a significant risk to the development and no further assessment is required. However, there is also a risk of unrecorded mine entries as the site is within a coal mining area. No specific investigation work is advised. However, a watching brief should be undertaken during any intrusive investigation work and groundworks to check for any signs of unrecorded mine entries.
Coal mining geology (geological faults, fissures and breaklines)	X	Not recorded on Coal Authority data.
Record of past mine gas emissions	?	Not recorded on Coal Authority data. However, shallow potentially worked coal seams may be present below the site, which have the potential to be a source of ground gas. Investigation work recommended (gas monitoring and gas risk assessment).
Recorded coal mining surface hazard	X	No recorded coal mining surface hazard.
Surface mining (opencast workings)	✓	Opencast mining recorded at the eastern boundary of the site. Details unknown. These may pose a risk of ground instability, depending on the fill material, compaction methods and location of the high wall. Further assessment is recommended to confirm the depth, extent and strength of the fill material. The location of the high wall should also be confirmed.

Table 3-1: Potential Coal Mining Risks.

Notes:

✓ = Risk identified, X = No risk identified, ? = Possible risk identified.

4. Conclusions and Recommendations

4.1. Summary

Based upon the available information, LKC have identified potential shallow coal mining risks which are summarised in Table 4-1.

Coal Mining Issue	Potential Risk
Underground coal mining (recorded at shallow depths)	✓
Underground coal mining (probable at shallow depths)	✓
Mine entries (shafts / adits)	✓
Coal mining geology (fissures)	X
Record of past mine gas emissions	?
Recorded coal mining surface hazard	X
Surface mining (opencast workings)	✓

Table 44-1: Summary of coal mining potential risks.

4.2. Site Investigation Recommendations

Considering the available information and guidance given in CIRIA C758¹⁰, LKC consider that intrusive investigation work should be carried out to confirm the risk associated with coal mining. The intrusive investigation works should be designed by a suitably qualified mining engineer; these works are likely to include the options detailed in Table 4-2.

Coal Mining Issue	Investigation Work
Underground coal mining (recorded at shallow depths)	Rotary drilling across the site to confirm the depth to coal seams, the thickness of seams, signs of workings and evidence of treatment work.
Underground coal mining (probable at shallow depths)	Rotary drilling across the site to confirm the depth to coal seams, the thickness of seams, signs of workings and evidence of treatment work. Watching brief during groundworks to check for any signs of mining related ground instability (see below).
Mine entries (shafts / adits)	No specific investigation work required. However, watching brief during intrusive investigation work and groundworks to check for any signs of mine entries (see below).
Coal mining geology (fissures)	N/A
Record of past mine gas emissions	Gas monitoring during mining investigation (rotary drilling). Depending on findings of mining investigation, possible precautionary gas protection measures or gas monitoring in line with CIRIA 665 ¹¹ .
Recorded coal mining surface hazard	N/A
Surface mining (opencast workings)	Drilling / probing to confirm the extent of the opencast and to identify the type and strength of fill material.

Table 4-2: Summary of investigation requirements.

Prior to carrying out investigation work, it would be advisable to consult available abandoned mine plans to aid in the design of any future works.

Investigation work should be carried out in line with CIRIA C758¹² and Coal Authority guidance.

A Coal Authority Permit¹³ is required for intrusive activities which will disturb or enter any coal seams, coal mine workings or coal mine entries (shafts and adits).

4.3. Watching Brief

A watching brief is recommended in all coal mining areas. This could be undertaken by experienced site staff on low-risk sites or by a suitably qualified coal mining engineer or consultant on high-risk sites. This site is considered to be high risk, given the recorded shallow mining below the site and the presence of mine entries close to the site.

The watching brief should cover the period in which any earthworks, reduce level dig or foundation excavation works are being undertaken. Particular care should be taken to identify any potential features which may indicate the presence of shallow coal mining hazards.

Such hazards may include, but not limited to, features such as unexplained depressions or voids, outcropping coal seams, localised areas of deep made ground (which could represent backfilled areas of coal mining related ground subsidence, crown holes or mine entries), or unexpected man-made items at depth (e.g., brickwork, concrete, timber, or steelwork).

Mine entries may manifest during excavation works as circular, square, or rectangular areas of deep Made Ground (typically several metres in size) set against the natural strata (e.g., Glacial Till or weathered rock). Mine shafts may also be covered with a large, thick concrete cap.

If any of the above features are identified during the course of the development works, then work should be stopped to allow the mining engineer / consultant to assess them and if necessary, design further or additional investigation and / or remediation works.

4.4. Mitigation Measures

Depending on the findings of the mining investigation, mitigation measures may be required. Table 4-3 provides possible mitigation options.

Coal Mining Issue	Mitigation Measures
Underground coal mining (recorded at shallow depths)	Move structures to 'safe' areas of the site. Stabilisation of the ground (i.e., grouting) and suitable foundations to be implemented.
Underground coal mining (probable at shallow depths)	
Mine entries (shafts / adits)	Move structures to 'safe' areas of the site. Treat mine entry (backfill, cap). Follow The Coal Authority's 'Policy for Building Over or Within The Influencing Distance of A Mine Entry' ¹⁴
Coal mining geology (fissures)	N/A
Record of past mine gas emissions	Gas protection measures.
Recorded coal mining surface hazard	N/A
Surface mining (opencast workings)	Suitable foundations to be implemented (e.g., piling to competent strata, raft foundations).

Table 4-3: Summary of potential mitigation measures.

4.5. Conclusions and Safe Development

At this stage the possibility for shallow workings can only be ascertained from site investigation; however, LKC consider that the site could be safely developed with regards to shallow mining subject to an appropriate site investigation and, if required,

appropriate mitigation measures which may include some of those measures as detailed above.

Therefore, LKC consider the study site should be capable of being made safe and stable to meet the requirements of national planning policy with regard to development on unstable land.

Figures



Client: Go Wallpaper Ltd				Title: Site Location & Boundary Plan			
Site: Land Adjacent to Genesis Street				Scale (see scale bar): 1:25,000 & 1:500 @ A4			Figure: 1
Job No.: LKC 24 1154		Drawn By: EH	Checked By: RC	Drawn: May 2024	Revision:		

Appendix A – Geological Mapping

Geology 1:10,000 Maps Legends

Artificial Ground and Landslip

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	WGR	Worked Ground (Undivided)	Void	Holocene - Holocene
	WMGR	Infilled Ground	Artificial Deposit	Holocene - Holocene
	MGR	Made Ground (Undivided)	Artificial Deposit	Holocene - Holocene
	LSGR	Landscaped Ground (Undivided)	Artificial Deposit	Holocene - Holocene
	DDGR	Disturbed Ground (Undivided)	Unknown/Unclassified Entry	Holocene - Holocene
	SLIP	Landslide Deposit	Unknown/Unclassified Entry	Quaternary - Quaternary

Superficial Geology

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	ALV	Alluvium	Clay, Silt, Sand and Gravel	Flandrian - Pleistocene
	TILLD	Till, Devensian	Diamicton	Devensian - Ipswichian
	GFSDD	GLACIOFLUVIAL SHEET DEPOSITS, DEVENSIAN	Sand and Gravel	Devensian - Ipswichian
	GFDUD	Glaciofluvial Deposits, Devensian	Sand and Gravel	Devensian - Ipswichian
	RTD1	River Terrace Deposits, 1	Sand and Gravel	Quaternary - Ryazanian

Bedrock and Faults

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	NR	Nob End Rock	Sandstone	Bolsovian - Bolsovian
	NHSS	Newton Heath Sandstone	Sandstone	Bolsovian - Bolsovian
	PMCM	Pennine Middle Coal Measures Formation	Mudstone, Siltstone and Sandstone	Bolsovian - Duckmantian
	PR	Peel Hall Rock	Sandstone	Duckmantian - Duckmantian
	PMCM	Pennine Middle Coal Measures Formation	Sandstone	Bolsovian - Duckmantian
	PLCM	Pennine Lower Coal Measures Formation	Mudstone, Siltstone and Sandstone	Langsettian - Langsettian
	PLCM	Pennine Lower Coal Measures Formation	Sandstone	Langsettian - Langsettian
	TRBR	Trencherbone Rock	Sandstone	Langsettian - Langsettian
	CAR	Cannel Rock (South Lancashire)	Sandstone	Langsettian - Langsettian
	Rock			
	Fault			



Geology 1:10,000 Maps

This report contains geological map extracts taken from the BGS Digital Geological map of Great Britain at 1:10,000 scale and is designed for users carrying out preliminary site assessments who require geological maps for the area around a site. This mapping may be more up to date than previously published paper maps.

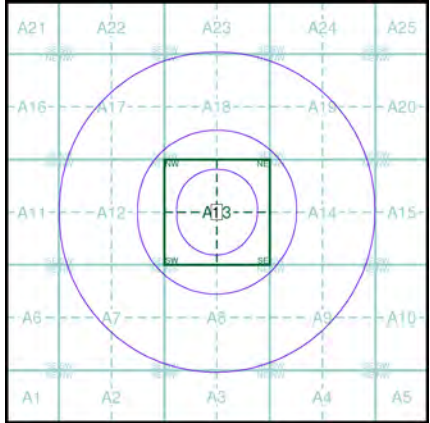
The various geological layers - artificial and landslip deposits, superficial geology and solid (bedrock) geology are displayed in separate maps, but superimposed on the final 'Combined Surface Geology' map. All map legends feature on this page.

Please Note: Not all of the layers have complete nationwide coverage, so availability of data for relevant map sheets is indicated below.

Geology 1:10,000 Maps Coverage

Map ID:	1
Map Name:	SD70NE
Map Date:	2008
Bedrock Geology:	Available
Superficial Geology:	Available
Artificial Geology:	Available
Faults:	Available
Landslip:	Available
Rock Segments:	Available

Geology 1:10,000 Maps - Slice A



Order Details

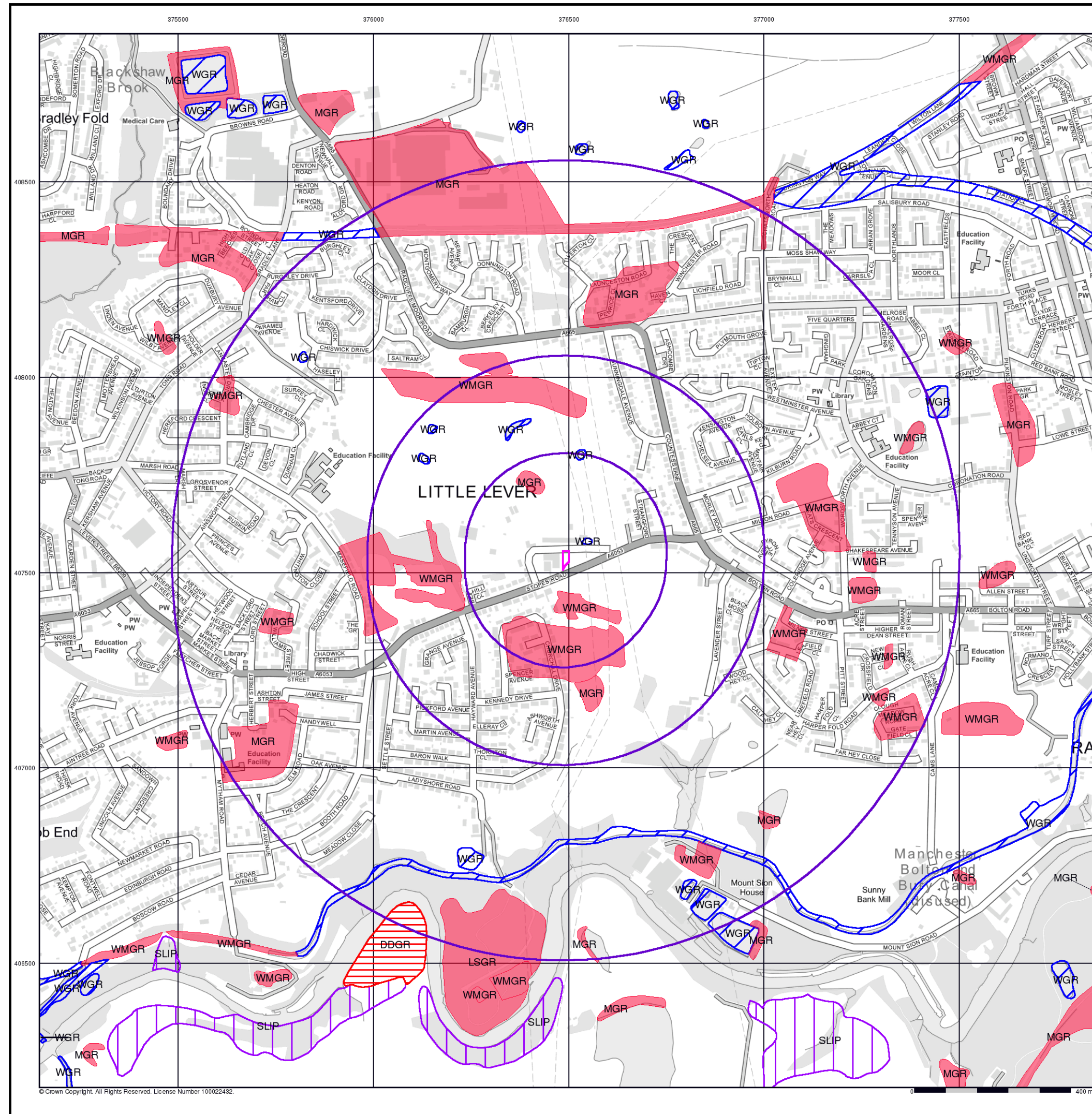
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Customer Ref:	LKC 24 1154
National Grid Reference:	376490, 407530
Slice:	A
Site Area (Ha):	0.06
Search Buffer (m):	1000

Site Details

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Artificial Ground and Landslip

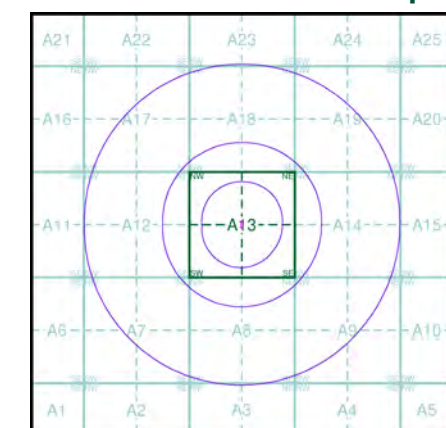
Artificial ground is a term used by BGS for those areas where the ground surface has been significantly modified by human activity. Information about previously developed ground is especially important, as it is often associated with potentially contaminated material, unpredictable engineering conditions and unstable ground.

Artificial ground includes:

- Made ground - man-made deposits such as embankments and spoil heaps on the natural ground surface.
- Worked ground - areas where the ground has been cut away such as quarries and road cuttings.
- Infilled ground - areas where the ground has been cut away then wholly or partially backfilled.
- Landscaped ground - areas where the surface has been reshaped.
- Disturbed ground - areas of ill-defined shallow or near surface mineral workings where it is impracticable to map made and worked ground separately.

Mass movement (landslip) deposits on BGS geological maps are primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground. The dataset also includes founded strata, where the ground has collapsed due to subsidence.

Artificial Ground and Landslip Map - Slice A



Order Details

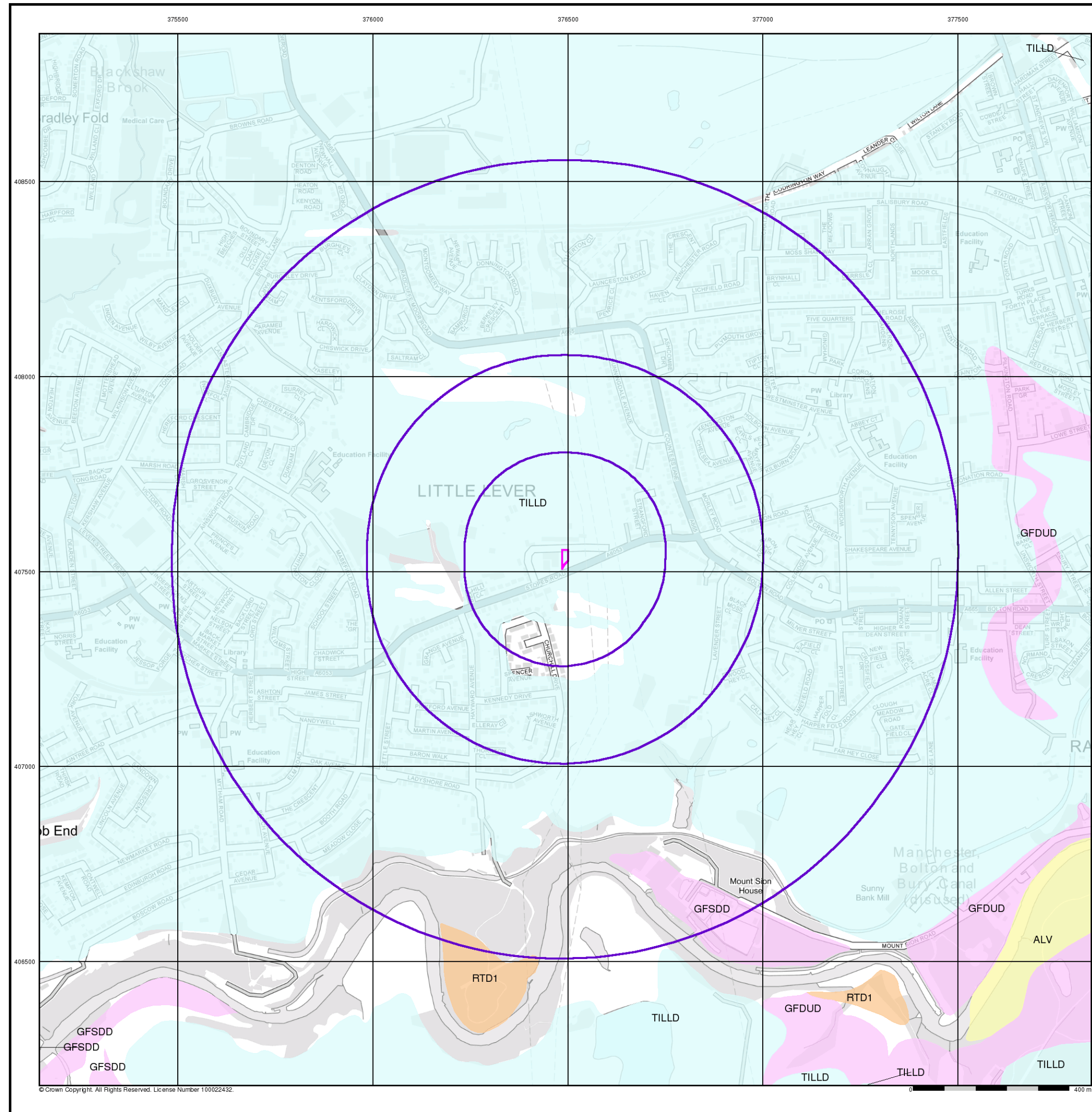
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Customer Ref: LKC 24 1154
National Grid Reference: 376490, 407530
Slice: A
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LK GROUP

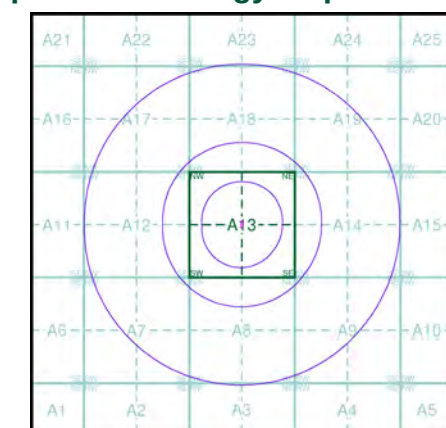
Superficial Geology

BGS 1:10,000 Superficial Deposits are the youngest geological deposits formed during the most recent period of geological time, which extends back about 1.8 million years from the present.

They rest on older deposits or rocks referred to as Bedrock. This dataset contains Superficial deposits that are of natural origin and 'in place'. Other superficial strata may be held in the Mass Movement dataset where they have been moved, or in the Artificial Ground dataset where they are of man-made origin.

Most of these Superficial deposits are unconsolidated sediments such as gravel, sand, silt and clay, and onshore they form relatively thin, often discontinuous patches or larger spreads.

Superficial Geology Map - Slice A



Order Details

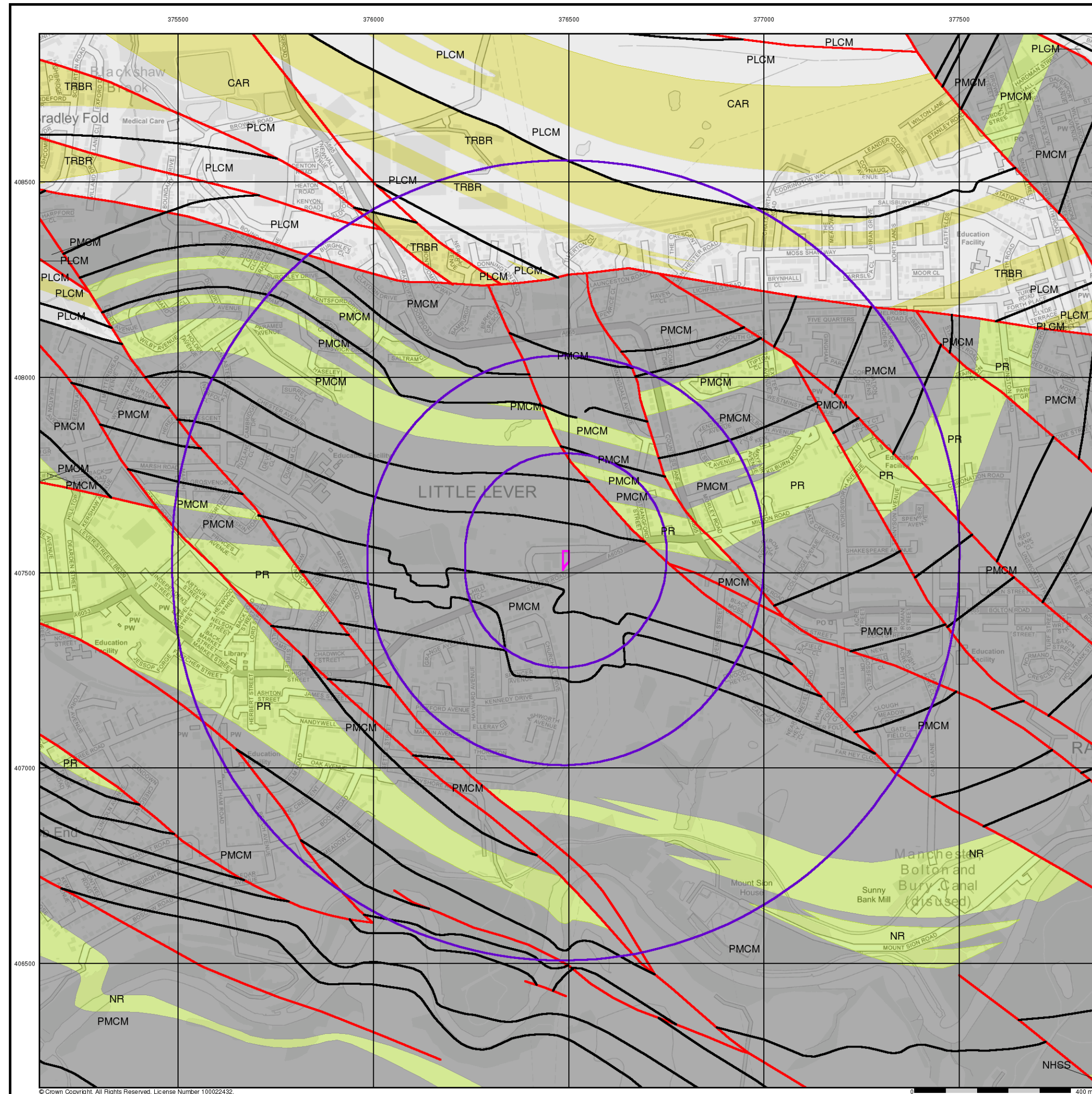
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LK GROUP

Bedrock and Faults

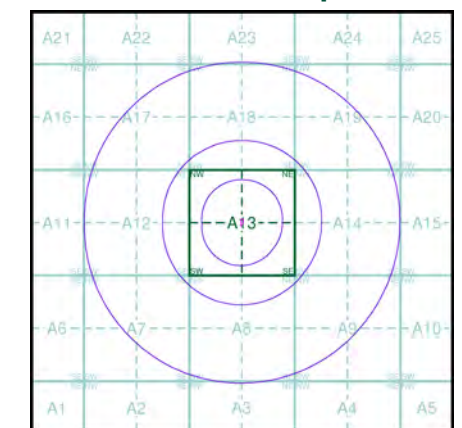
Bedrock geology is a term used for the main mass of rocks forming the Earth and are present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

The bedrock has formed over vast lengths of geological time ranging from ancient and highly altered rocks of the Proterozoic, some 2500 million years ago, or older, up to the relatively young Pliocene, 1.8 million years ago.

The bedrock geology includes many lithologies, often classified into three types based on origin: igneous, metamorphic and sedimentary.

The BGS Faults and Rock Segments dataset includes geological faults and thin beds mapped as lines such as coal seams and mineral veins. These are not restricted by age and could relate to features of any of the 1:10,000 geology datasets.

Bedrock and Faults Map - Slice A



Order Details

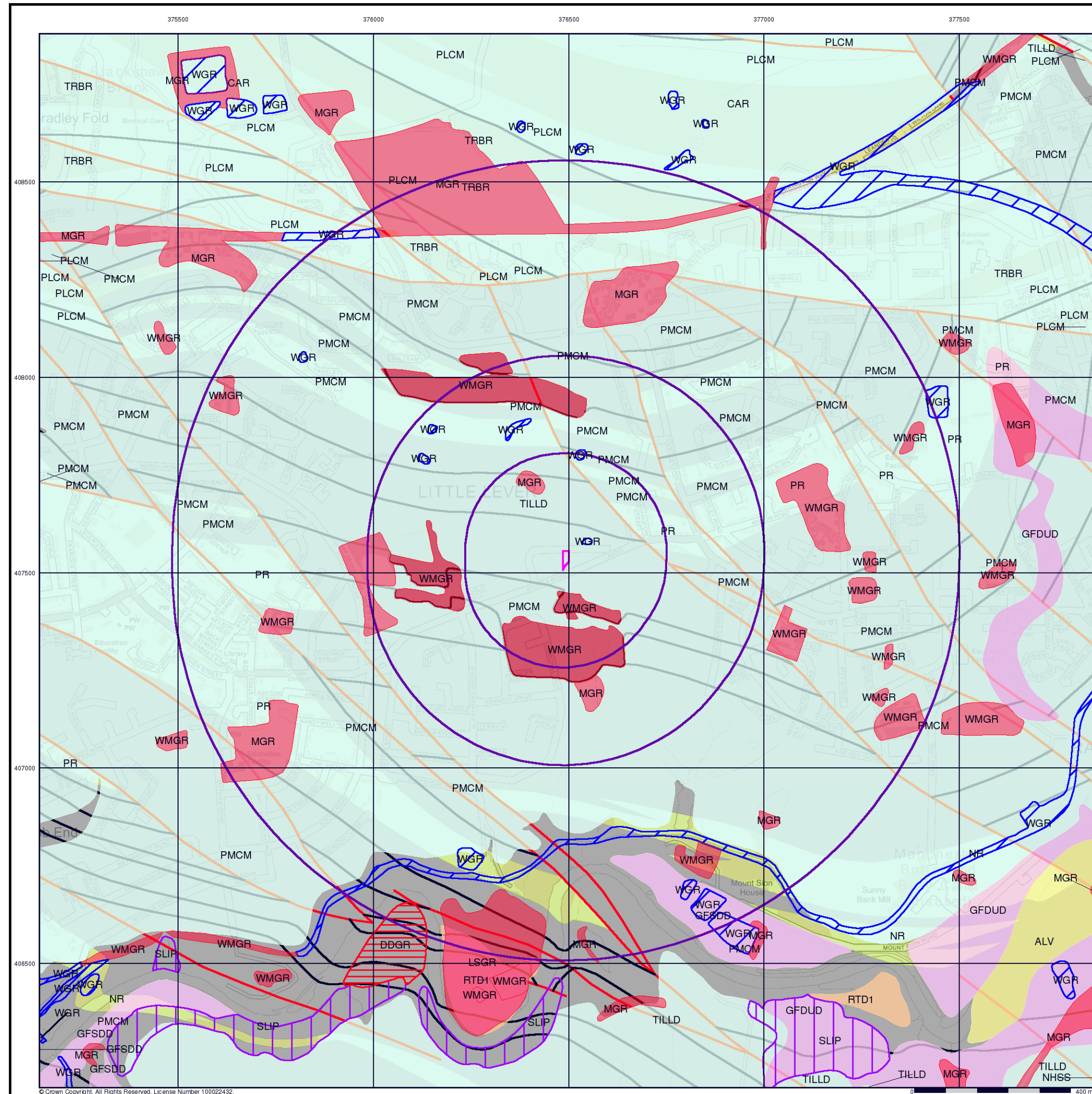
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Customer Ref: LKC 24 1154
National Grid Reference: 376490, 407530
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Site Area (Ha): 0.06
Search Buffer (m): 1000

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Landmark
INFORMATION GROUP

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GROUP

Combined Surface Geology

The Combined Surface Geology map combines all the previous maps into one combined geological overview of your site.

Please consult the legends to the previous maps to interpret the Combined "Surface Geology" map.

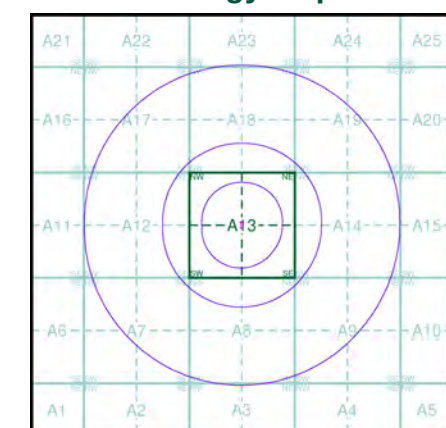
Additional Information

More information on 1:10,000 Geological mapping and explanations of rock classifications can be found on the BGS website. Using the LEX Codes in this report, further descriptions of rock types can be obtained by interrogating the 'BGS Lexicon of Named Rock Units'. This database can be accessed by following the 'Information and Data' link on the BGS website.

Contact

British Geological Survey
Kingsley Dunham Centre
Keyworth
Nottingham
NG12 5GG
Telephone: 0115 936 3143
Fax: 0115 936 3276
email: enquiries@bgs.ac.uk
website: www.bgs.ac.uk

Combined Geology Map - Slice A



Order Details

Order Number: 345341568_1_1
Customer Ref: LKC 24 1154
National Grid Reference: 376490, 407530
Slice: A
Site Area (Ha): 0.06
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Geology 1:50,000 Maps Legends

Artificial Ground and Landslip

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	WMGR	Infilled Ground	Artificial Deposit	Not Supplied - Holocene
	MGR	Made Ground (Undivided)	Artificial Deposit	Not Supplied - Holocene
	WGR	Worked Ground (Undivided)	Void	Not Supplied - Holocene
	SLIP	Landslide Deposit	Unknown/Unclassified Entry	Not Supplied - Quaternary

Superficial Geology

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	ALV	Alluvium	Clay, Silt, Sand and Gravel	Not Supplied - Holocene
	TILLD	Till, Devensian	Diamicton	Not Supplied - Devensian
	GFSD	Glaciofluvial Sheet Deposits, Devensian	Sand and Gravel	Not Supplied - Devensian
	GFDUD	Glaciofluvial Deposits, Devensian	Sand and Gravel	Not Supplied - Devensian
	GLDDD	Glaciolacustrine Deltaic Deposits, Devensian	Sand and Gravel	Not Supplied - Devensian
	GLLDD	Glaciolacustrine Deposits, Devensian	Clay and Silt	Not Supplied - Devensian
	RTD1	River Terrace Deposits, 1	Sand and Gravel	Not Supplied - Quaternary

Bedrock and Faults

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	CHES	Chester Formation	Sandstone	Not Supplied - Olenekian
	MM	Manchester Marls Formation	Mudstone	Not Supplied - GUADALUPIAN
	NR	Nob End Rock	Sandstone	Not Supplied - Westphalian
	NHSS	Newton Heath Sandstone	Sandstone	Not Supplied - Westphalian
	PUCM	Pennine Upper Coal Measures Formation	Mudstone, Siltstone and Sandstone	Not Supplied - Westphalian
	WDR	Worsley Delf Rock	Sandstone	Not Supplied - Westphalian
	PMCM	Pennine Middle Coal Measures Formation	Mudstone, Siltstone and	Not Supplied - Westphalian

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
			Sandstone	
	PR	Peel Hall Rock	Sandstone	Not Supplied - Westphalian
	PMCM	Pennine Middle Coal Measures Formation	Sandstone	Not Supplied - Westphalian
	PLCM	Pennine Lower Coal Measures Formation	Mudstone, Siltstone and Sandstone	Not Supplied - Westphalian
	TRBR	Trencherbone Rock	Sandstone	Not Supplied - Westphalian
	CAR	Cannel Rock (South Lancashire)	Sandstone	Not Supplied - Westphalian
	PLCM	Pennine Lower Coal Measures Formation	Sandstone	Not Supplied - Westphalian
		Rock Segments		
		Faults		



Geology 1:50,000 Maps

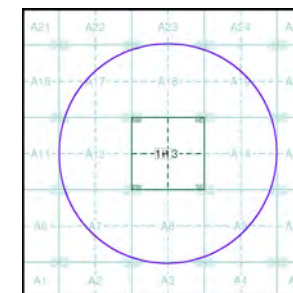
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The various geological layers - artificial and landslip deposits, superficial geology and solid (bedrock) geology are displayed in separate maps, but superimposed on the final 'Combined Surface Geology' map. All map legends feature on this page. Not all layers have complete nationwide coverage, so availability of data for relevant map sheets is indicated below.

Geology 1:50,000 Maps Coverage

Map ID: 1
Map Sheet No: 085
Map Name: Manchester
Map Date: 2010
Bedrock Geology: Available
Superficial Geology: Not Available
Artificial Geology: Not Available
Faults: Not Supplied
Landslip: Not Available
Rock Segments: Not Supplied

Geology 1:50,000 Maps - Slice A



Order Details:

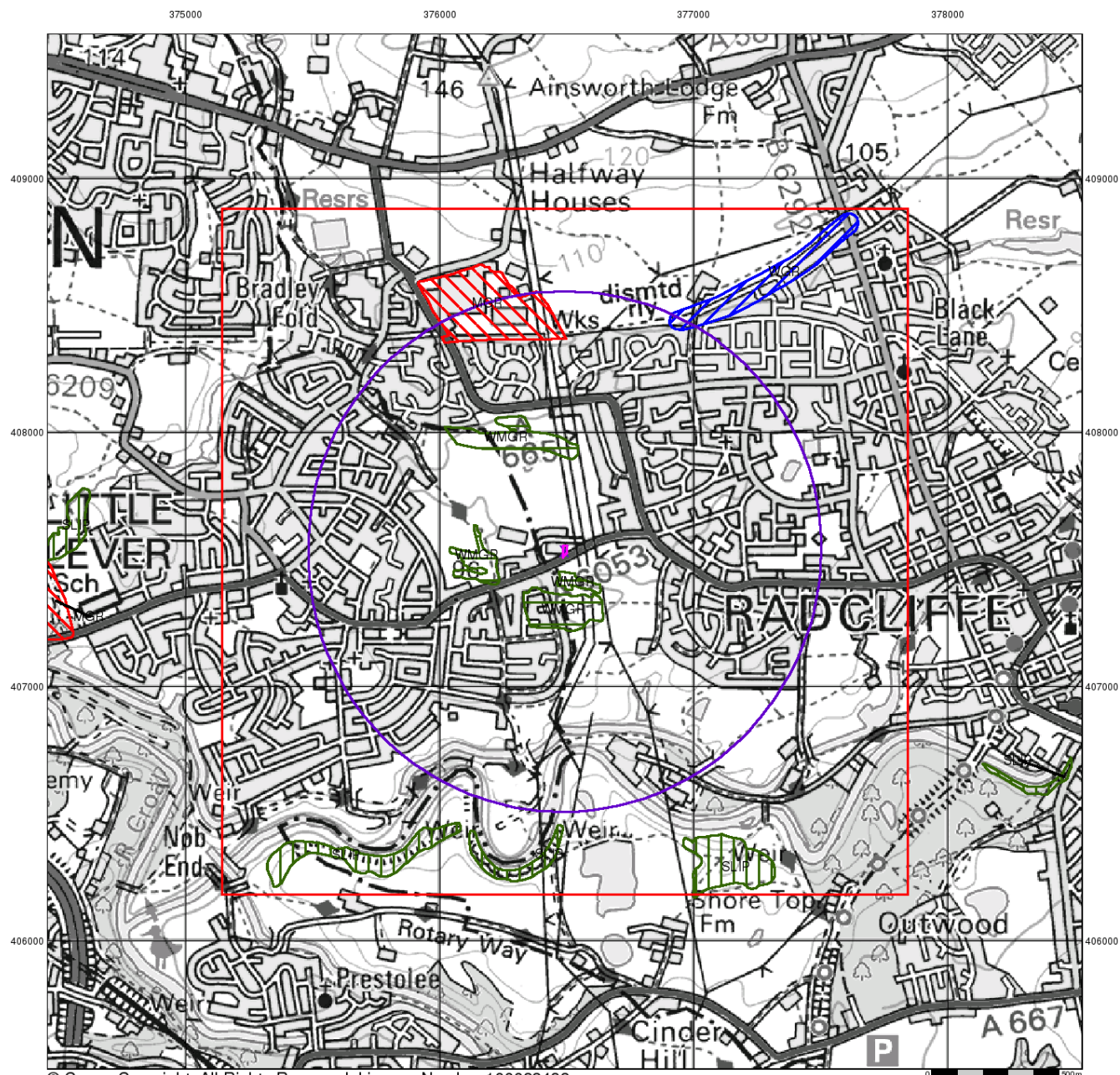
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Customer Reference: LKC 24 1154
National Grid Reference: 376490, 407530
Slice: A
Site Area (Ha): 0.06
Search Buffer (m): 1000

Site Details:

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Artificial Ground and Landslip

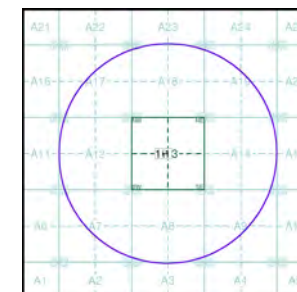
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Mass movement (landslip) deposits on BGS geological maps are primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground. The dataset also includes foundered strata, where the ground has collapsed due to subsidence.

Artificial Ground and Landslip Map - Slice A



Order Details:

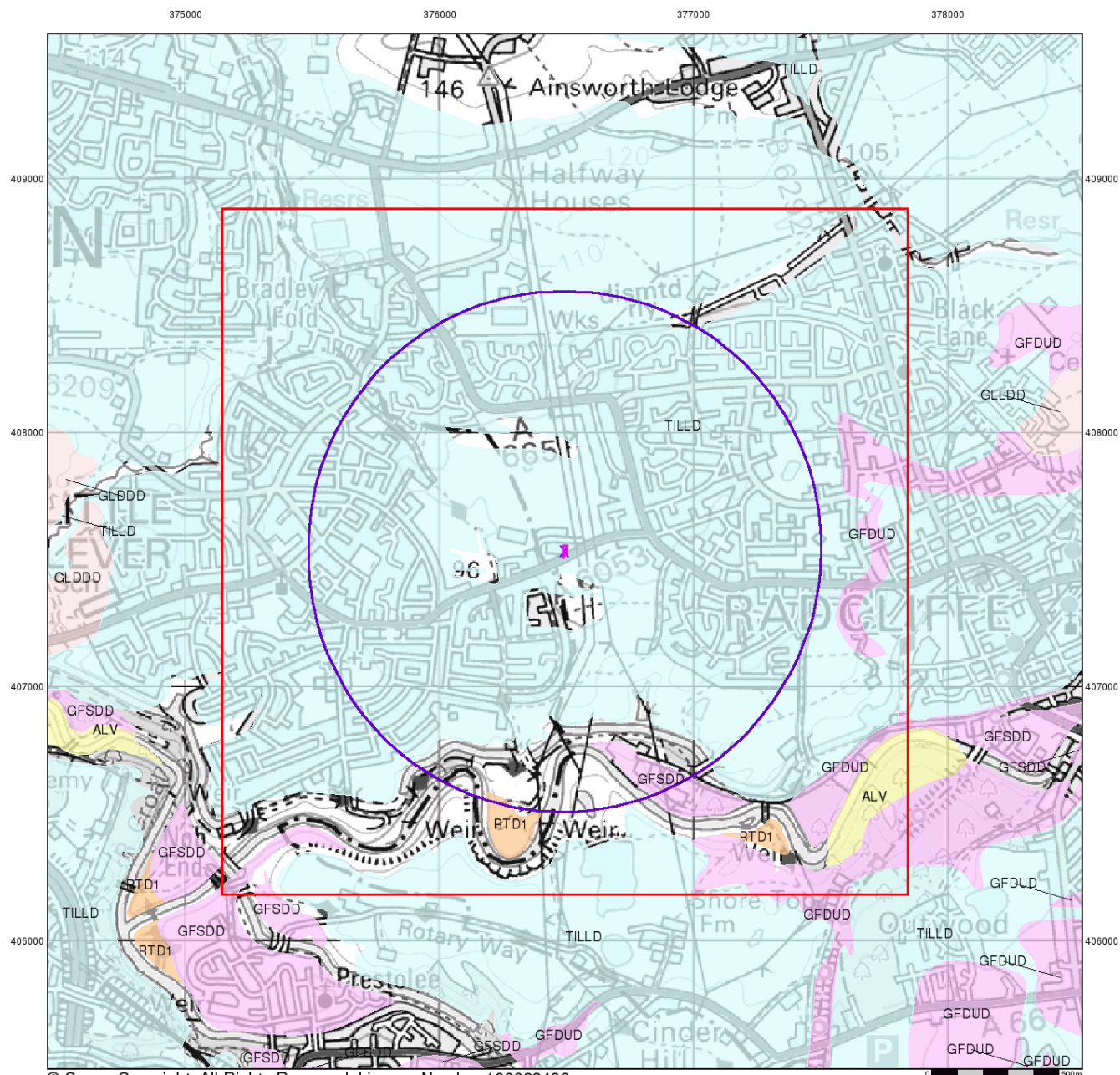
Order Number: 345341568_1_1
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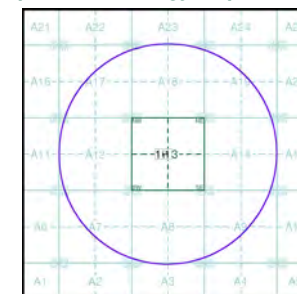
Superficial Geology

Superficial Deposits are the youngest geological deposits formed during the most recent period of geological time, the Quaternary, which extends back about 1.8 million years from the present.

They rest on older deposits or rocks referred to as Bedrock. This dataset contains Superficial deposits that are of natural origin and 'in place'. Other superficial strata may be held in the Mass Movement dataset where they have been moved, or in the Artificial Ground dataset where they are of man-made origin.

Most of these Superficial deposits are unconsolidated sediments such as gravel, sand, silt and clay, and onshore they form relatively thin, often discontinuous patches or larger spreads.

Superficial Geology Map - Slice A



Order Details:

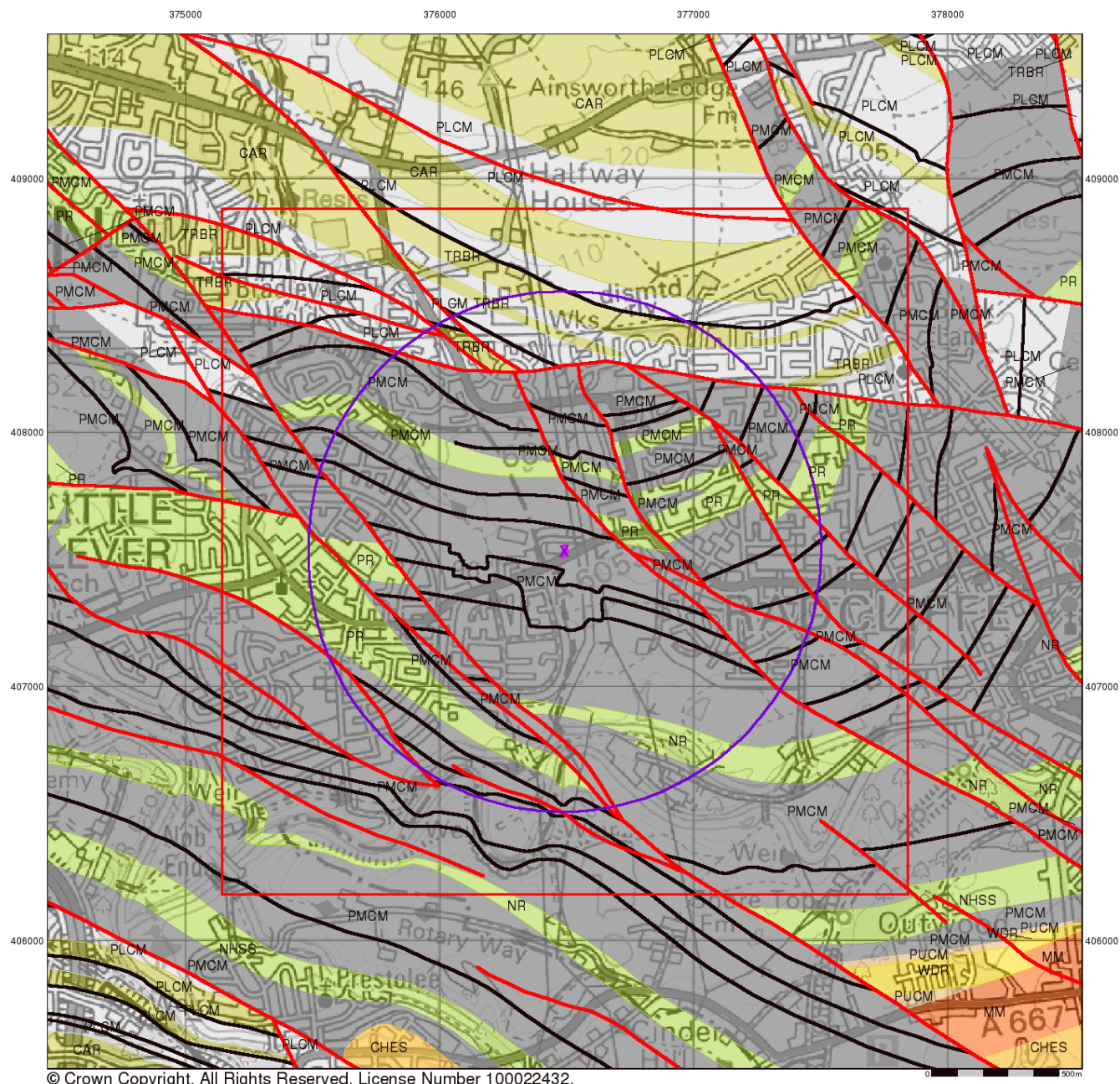
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 Customer Reference: LKC 24 1154
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 Slice: A
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Bedrock and Faults

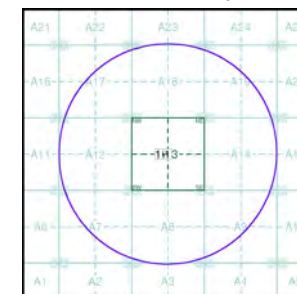
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The bedrock has formed over vast lengths of geological time ranging from ancient and highly altered rocks of the Proterozoic, some 2500 million years ago, or older, up to the relatively young Pliocene, 1.8 million years ago.

The bedrock geology includes many lithologies, often classified into three types based on origin: igneous, metamorphic and sedimentary.

The BGS Faults and Rock Segments dataset includes geological faults (e.g. normal, thrust), and thin beds mapped as lines (e.g. coal seam, gypsum bed). Some of these are linked to other particular 1:50,000 Geology datasets, for example, coal seams are part of the bedrock sequence, most faults and mineral veins primarily affect the bedrock but cut across the strata and post date its deposition.

Bedrock and Faults Map - Slice A



Order Details:

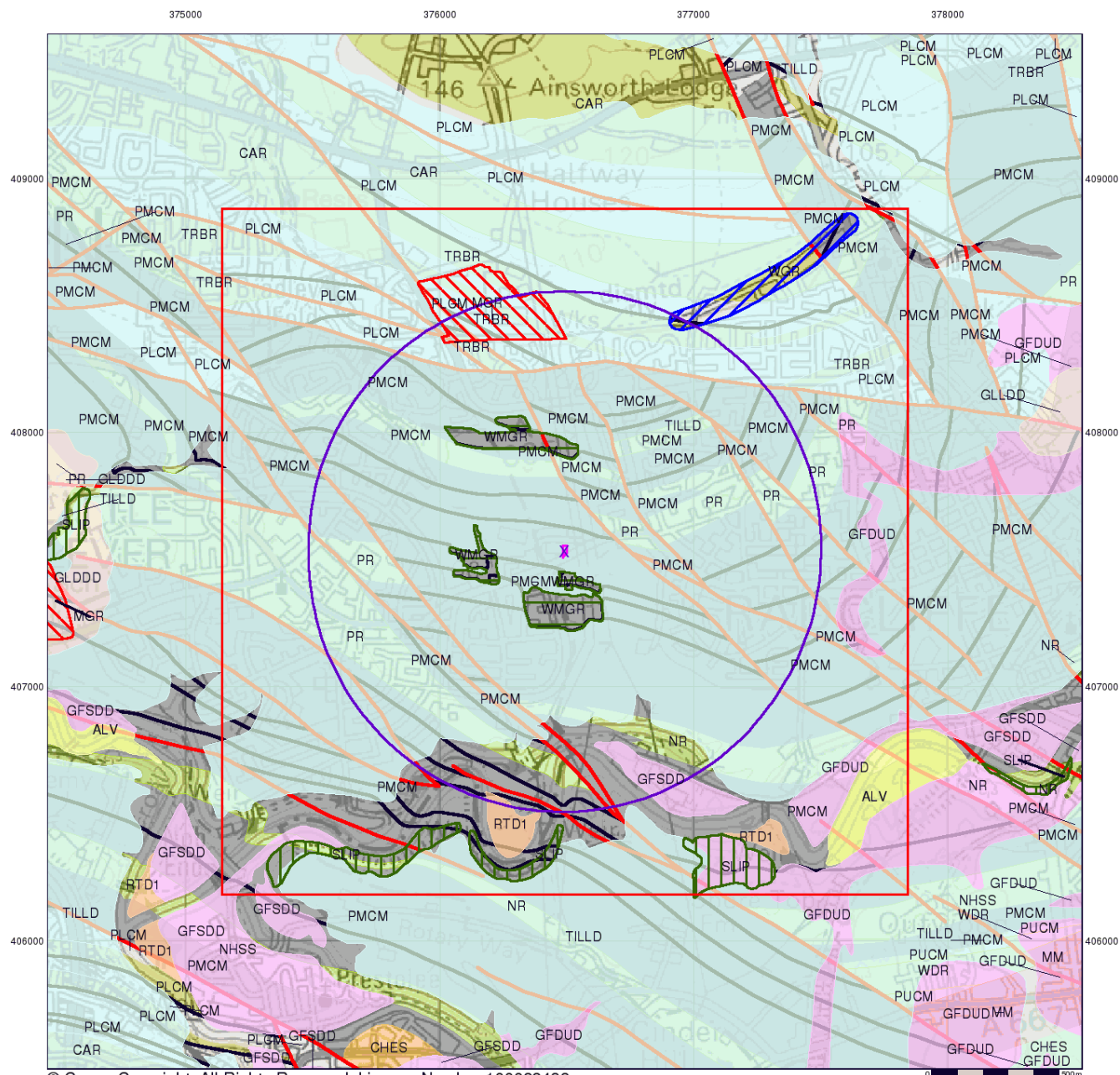
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Combined Surface Geology

The Combined Surface Geology map combines all the previous maps into one combined geological overview of your site.

Please consult the legends to the previous maps to interpret the Combined "Surface Geology" map.

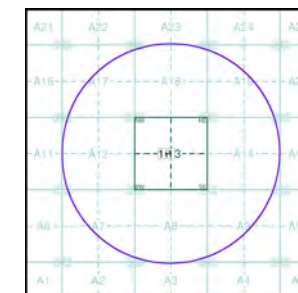
Additional Information

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Contact

British Geological Survey
Kingsley Dunham Centre
Keyworth
Nottingham
NG12 5GG
Telephone: 0115 936 3143
Fax: 0115 936 3276
email: enquiries@bgs.ac.uk
website: www.bgs.ac.uk

Combined Geology Map - Slice A



Order Details:

Order Number: 345341568_1_1
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Slice: A
Site Area (Ha): 0.06
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Site Details:

Site at 376490, 407540



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Appendix B – Coal Authority Consultants Report



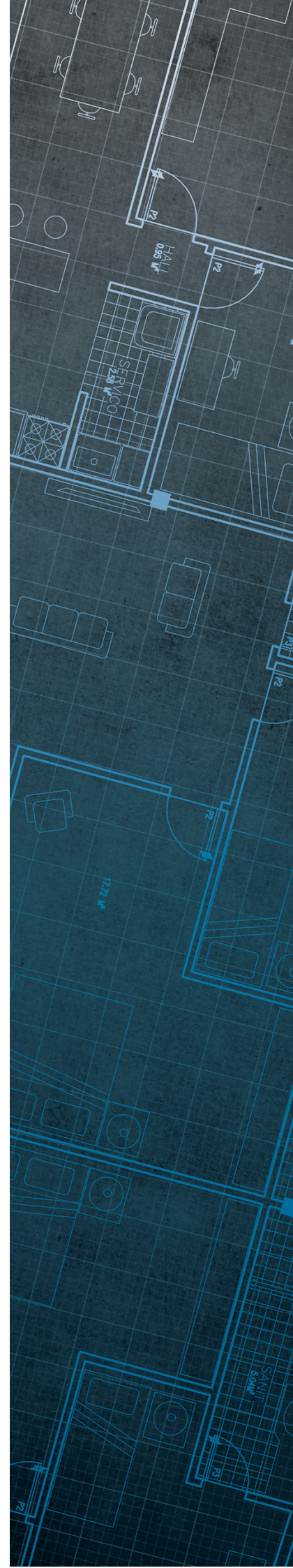
The Coal
Authority

Consultants Coal Mining Report

Site At 376490, 407540
Lancashire

Date of enquiry: 3 May 2024
Date enquiry received: 3 May 2024
Issue date: 3 May 2024

Our reference: 51003422150001
Your reference: 345341568_2



Consultants

Coal Mining Report

This report is based on and limited to the records held by the Coal Authority at the time the report was produced.

Client name

NLIS Hub

Enquiry address

Site At 376490, 407540
Lancashire

How to contact us

0345 762 6848 (UK)
+44 (0)1623 637 000 (International)

200 Lichfield Lane
Mansfield
Nottinghamshire
NG18 4RG

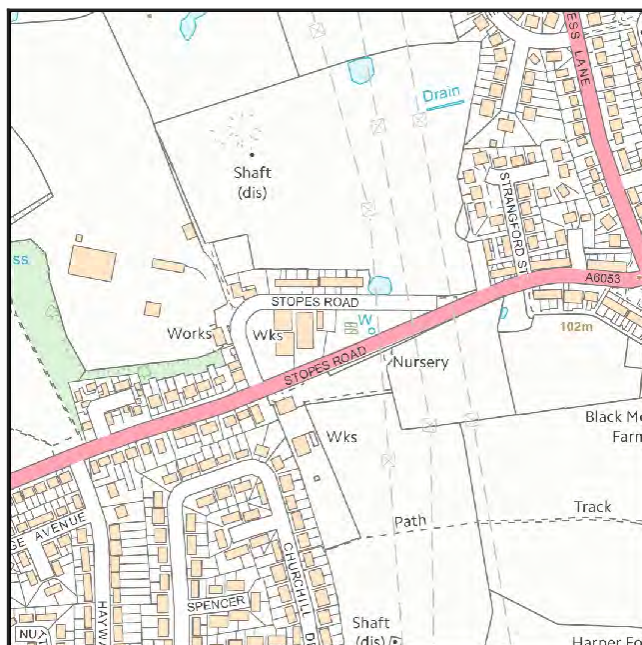
www.groundstability.com

 @coalauthority

 /company/the-coal-authority

 /thecoalauthority

 /thecoalauthority



Approximate position of property



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Section 1 – Mining activity and geology

Past underground mining

Colliery	Seam	Mineral	Coal Authority reference	Depth (m)	Direction to working	Dipping rate of seam worked (degrees)	Dipped direction of seam worked	Extraction thickness (cm)	Year last mined
unnamed	ROGER	Coal	3Z20	23	Beneath Property	16.0	South	210	1887
unnamed	LOWER FLORIDA	Coal	3YX4	86	North-West	16.0	South	190	1901
unnamed	RAMS	Coal	3YNH	92	Beneath Property	14.9	South	180	1898
unnamed	TOP SHUTTLES	Coal	3Z3V	101	North-West	16.0	South-West	150	1894
unnamed	FAIR BOTTOM	Coal	3YX2	114	North-East	16.0	South-West	30	1957
unnamed	RAMS	Coal	3YN3	116	South-West	14.9	South	180	1898
unnamed	HIGHER FLORIDA	Coal	3YR4	159	Beneath Property	14.0	South	50	1900
unnamed	LOWER FLORIDA	Coal	3YXI	170	Beneath Property	16.0	South-West	190	1901
unnamed	WIGAN FIVE FEET	Coal	3YY5	189	Beneath Property	16.0	South	120	1908
unnamed	TOP SHUTTLES	Coal	3Z43	191	Beneath Property	16.0	South-West	150	1894
unnamed	DOE	Coal	3Z3X	196	Beneath Property	16.0	South	200	1904
unnamed	TRENCHERB ONE	Coal	3YWZ	239	North-East	14.0	South	160	1908
unnamed	CANNEL	Coal	3YQR	280	North-East	14.0	South	150	1908
unnamed	CANNEL	Coal	3YQQ	337	Beneath Property	16.0	South	150	1908
unnamed	TRENCHERB ONE	Coal	3YWL	344	Beneath Property	16.0	South	160	1908

Probable unrecorded shallow workings

Yes.

Spine roadways at shallow depth

No spine roadway recorded at shallow depth.

Mine entries

Entry type	Reference	Grid reference	Treatment description	Mineral	Conveyancing details
Adit	376407-009	376437 407508		Coal	
Shaft	376407-017	376583 407549		Coal	
Shaft	376407-021	376471 407467		Coal	
Adit	376407-022	376486 407481	This adit has been backfilled with debris to at some time in the past	Coal	
Shaft	376407-031	376598 407550		Coal	

Abandoned mine plan catalogue numbers

The following abandoned mine plan catalogue numbers intersect with some, or all, of the enquiry boundary:

6603	NW998	PO0
NW991	16820	NW293
NW1043	NW1052	9822

Our records show we have more plans than those shown above which could affect the enquiry boundary.

Please contact us on 0345 762 6848 to determine the exact abandoned mine plans you require based on your needs.

Outcrops

No outcrops recorded.

Geological faults, fissures and breaklines

No faults, fissures or breaklines recorded.

Opencast mines

Please refer to the "Summary of findings" map (on separate sheet) for details of any opencast areas within 500 metres of the enquiry boundary.

Coal Authority managed tips

None recorded within 500 metres of the enquiry boundary.

Section 2 – Investigative or remedial activity

Please refer to the 'Summary of findings' map (on separate sheet) for details of any activity within the area of the site boundary.

Site investigations

None recorded within 50 metres of the enquiry boundary.

Remediated sites

None recorded within 50 metres of the enquiry boundary.

Coal mining subsidence

The Coal Authority has not received a damage notice or claim for the subject property, or any property within 50 metres of the enquiry boundary, since 31 October 1994.

There is no current Stop Notice delaying the start of remedial works or repairs to the property.

The Coal Authority is not aware of any request having been made to carry out preventive works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991.

Mine gas

None recorded within 500 metres of the enquiry boundary.

Mine water treatment schemes

None recorded within 500 metres of the enquiry boundary.

Section 3 – Licensing and future mining activity

Future underground mining

None recorded.

Coal mining licensing

None recorded within 200 metres of the enquiry boundary.

Court orders

None recorded.

Section 46 notices

No notices have been given, under section 46 of the Coal Mining Subsidence Act 1991, stating that the land is at risk of subsidence.

Withdrawal of support notices

The property is not in an area where a notice to withdraw support has been given.

The property is not in an area where a notice has been given under section 41 of the Coal Industry Act 1994, cancelling the entitlement to withdraw support.

Payments to owners of former copyhold land

The property is not in an area where a relevant notice has been published under the Coal Industry Act 1975/Coal Industry Act 1994.

Section 4 – Further information

The following potential risks have been identified and as part of your risk assessment should be investigated further.

Future development

If development proposals are being considered, technical advice relating to both the investigation of coal and former coal mines and their treatment should be obtained before beginning work on site. All proposals should apply specialist engineering practice required for former mining areas. No development should be undertaken that intersects, disturbs or interferes with any coal or coal mines without first obtaining the permission of the Coal Authority.

MINE GAS: Please note, if there are no recorded instances of mine gas within 500m of the enquiry boundary, this does not mean that mine gas is not present within the vicinity. The Coal Authority Mine Gas data is limited to only those sites where a Mine Gas incident has been recorded. Developers should be aware that the investigation of coal seams, mine workings or mine entries may have the potential to generate and/or displace underground gases. Associated risks both to the development site and any neighbouring land or properties should be fully considered when undertaking any ground works. The need for effective measures to prevent gases migrating onto any land or into any properties, either during investigation or remediation work, or after development must also be assessed and properly addressed. In these instances, the Coal Authority recommends that a more detailed Gas Risk Assessment is undertaken by a competent assessor.

Development advice

The site is within an area of historical coal mining activity. Should you require advice and/or support on understanding the mining legacy, its risks to your development or what next steps you need to take, please contact us.

For further information on specific site or ground investigations in relation to any issues raised in Section 4, please call us on 0345 762 6848 or email us at groundstability@coal.gov.uk.

Section 5 – Data definitions

The datasets used in this report have limitations and assumptions within their results. For more guidance on the data and the results specific to the enquiry boundary, please **call us on 0345 762 6848** or **email us at groundstability@coal.gov.uk**.

Past underground coal mining

Details of all recorded underground mining relative to the enquiry boundary. Only past underground workings where the enquiry boundary is within 0.7 times the depth of the workings (zone of likely physical influence) allowing for seam inclination, will be included.

Probable unrecorded shallow workings

Areas where the Coal Authority believes there to be unrecorded coal workings that exist at or close to the surface (less than 30 metres deep).

Spine roadways at shallow depth

Connecting roadways either, working to working, or, surface to working, both in-seam and cross measures that exist at or close to the surface (less than 30 metres deep), either within or within 10 metres of the enquiry boundary.

Mine entries

Details of any shaft or adit either within, or within 100 metres of the enquiry boundary including approximate location, brief treatment details where known, the mineral worked from the mine entry and conveyance details where the mine entry has previously been sold by the Authority or its predecessors British Coal or the National Coal Board.

Abandoned mine plan catalogue numbers

Plan numbers extracted from the abandoned mines catalogue containing details of coal and other mineral abandonment plans deposited via the Mines Inspectorate in accordance with the Coal Mines Regulation Act and Metalliferous Mines Regulation Act 1872. A maximum of 9 plan extents that intersect with the enquiry boundary will be included. This does not infer that the workings and/or mine entries shown on the abandonment plan will be relevant to the site/property boundary.

Outcrops

Details of seam outcrops will be included where the enquiry boundary intersects with a conjectured or actual seam outcrop location (derived by either the British Geological Survey or the Coal Authority) or intersects with a defined 50 metres buffer on the coal (dip) side of the outcrop. An indication of whether the Coal Authority believes the seam to be of sufficient thickness and/or quality to have been worked will also be included.

Geological faults, fissures and breaklines

Geological disturbances or fractures in the bedrock. Surface fault lines (British Geological Survey derived data) and fissures and breaklines (Coal Authority derived data) intersecting with the enquiry boundary will be included. In some circumstances faults, fissures or breaklines have been known to contribute to surface subsidence damage as a consequence of underground coal mining.

Opencast mines

Opencast coal sites from which coal has been removed in the past by opencast (surface) methods and where the enquiry boundary is within 500 metres of either the licence area, site boundary, excavation area (high wall) or coaling area.

Coal Authority managed tips

Locations of disused colliery tip sites owned and managed by the Coal Authority, located within 500 metres of the enquiry boundary.

Site investigations

Details of site investigations within 50 metres of the enquiry boundary where the Coal Authority has received information relating to coal mining risk investigation and/or remediation by third parties.

Remediated sites

Sites where the Coal Authority has undertaken remedial works either within or within 50 metres of the enquiry boundary following report of a hazard relating to coal mining under the Coal Authority's Emergency Surface Hazard Call Out procedures.

Coal mining subsidence

Details of alleged coal mining subsidence claims made since 31 October 1994 either within or within 50 metres of the enquiry boundary. Where the claim relates to the enquiry boundary confirmation of whether the claim was accepted, rejected or whether liability is still being determined will be given. Where the claim has been discharged, whether this was by repair, payment of compensation or a combination of both, the value of the claim, where known, will also be given.

Details of any current 'Stop Notice' deferring remedial works or repairs affecting the property/site, and if so the date of the notice.

Details of any request made to execute preventative works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991. If yes, whether any person withheld consent or failed to comply with any request to execute preventative works.

Mine gas

Reports of alleged mine gas emissions received by the Coal Authority, either within or within 500 metres of the enquiry boundary that subsequently required investigation and action by the Coal Authority to mitigate the effects of the mine gas emission. Please note, if there are no recorded instances of mine gas reported, this does not mean that mine gas is not present within the vicinity. The Coal Authority Mine Gas data is limited to only those sites where a Mine Gas incident has been recorded.

Mine water treatment schemes

Locations where the Coal Authority has constructed or operates assets that remove pollutants from mine water prior to the treated mine water being discharged into the receiving water body.

These schemes are part of the UK's strategy to meet the requirements of the Water Framework Directive. Schemes fall into 2 basic categories: Remedial – mitigating the impact of existing pollution or Preventative – preventing a future pollution incident.

Mine water treatment schemes generally consist of one or more primary settlement lagoons and one or more reed beds for secondary treatment. A small number are more specialised process treatment plants.

Future underground mining

Details of all planned underground mining relative to the enquiry boundary. Only those future workings where the enquiry boundary is within 0.7 times the depth of the workings (zone of likely physical influence) allowing for seam inclination will be included.

Coal mining licensing

Details of all licenses issued by the Coal Authority either within or within 200 metres of the enquiry boundary in relation to the under taking of surface coal mining, underground coal mining or underground coal gasification.

Court orders

Orders in respect of the working of coal under the Mines (Working Facilities and Support) Acts of 1923 and 1966 or any statutory modification or amendment thereof.

Section 46 notices

Notice of proposals relating to underground coal mining operations that have been given under section 46 of the Coal Mining Subsidence Act 1991.

Withdrawal of support notices

Published notices of entitlement to withdraw support and the date of the notice. Details of any revocation notice withdrawing the entitlement to withdraw support given under Section 41 of the Coal Industry Act 1994.

Payment to owners of former copyhold land

Relevant notices which may affect the property and any subsequent notice of retained interests in coal and coal mines, acceptance or rejection notices and whether any compensation has been paid to a claimant.

The map highlights any specific surface or subsurface features within or near to the boundary of the site.

Key

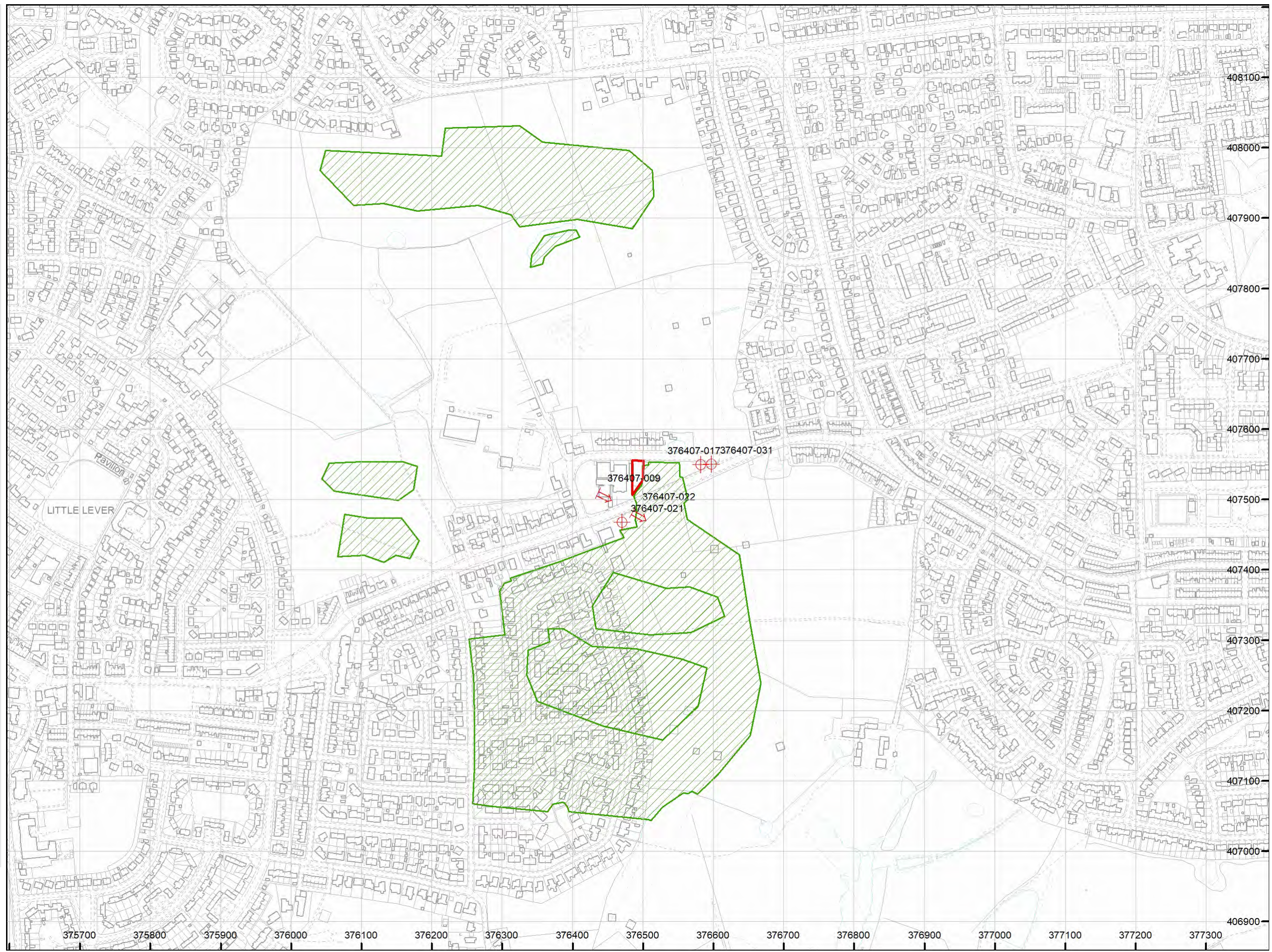
Approximate position of the enquiry boundary shown 

Disused mine shaft 

Disused adit 

Unlicensed opencast site 

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Appendix C – BGS Borehole Data



Name of site **Central LS N. West E.A.**
TARMAC TOPBLOCK ABH. LTD
LITTLE LEVER NR M/C.

BR 85
SD 70/246
BS **SPRONE**
Ref. grid: **SD 7633 0755**

Site: **ABH. INDUSTRIAL.**
Aquifer: **CARBONIFEROUS COAL MEASURES.**
Code: **103 BDF 22**

Depth of geological section Thickness Depth
BOREHOLE LOG & Casing Details
AVAILABLE

Construction Method **Aug. JUNE 1995**

Depth from top	Dia. mm	Straps (below and top)				Notes
		From	To	Dia.	Strap	
51.90	125	0	34m	125	STEEL.	

Abstraction rates Type of pump
1562 gal PW. 24.84m Chamber and **REGIONS**
With **drain WATER SUPPLY - FILTRATION.**

If insufficient space has been allowed, continue in SEB 1000

DECEMBER 14.10.97
SEE AMENDED BTH LOG



SD 70/246 TARMAC TOPBLOCK ABH

28/30-6-95 Pumping Test carried out
Average pumping rate 1562 gph.
Total quantity abstracted 75,000 gallons
Drawdown 6.54 metres.
Recovery time 94 hours.
For further details see report BL 09/95
BL log, pt data & white card copies see
to BGS Feb-96 - JCF

Appendix D - References

¹ The Coal Authority, 2017, "Risk based approach to development management. Guidance for developers.", Version 4.

² The Coal Authority, 2023, Interactive Map Viewer, <https://mapapps2.bgs.ac.uk/coalauthority/home.html>.

³ The Coal Authority, March 2015, "Coal seams with a history of spontaneous combustion", <https://www.gov.uk/government/publications/coal-seams-with-a-history-of-spontaneous-combustion>.

⁵ British Geological Society, GeoIndex Onshore, <https://mapapps2.bgs.ac.uk/geoindex/home.html>.

¹⁰ CIRIA, September 2019, "Abandoned Mine Workings Manual", C758D.

¹¹ CIRIA, December 2007, "Assessing risks posed by hazardous ground gases to buildings", C665.

¹² CIRIA, September 2019, "Abandoned Mine Workings Manual", C758D.

¹³ The Coal Authority, August 2021, "Get a permit to deal with coal or coal mines", <https://www.gov.uk/guidance/get-a-permit-to-deal-with-coal-or-coal-mines>.

¹⁴ The Coal Authority, January 2012, "Policy for Building Over or Within the Influencing Distance of a Mine Entry".

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